

Exosome Isolation and Purification Kit (Tissue)

Cat. No.: E1528051 | Pack size: 2T | Storage: Room temperature. Store at -20°C.

Overview

Exosomes are small-sized vesicles (30-150 nm) secreted by cells, containing RNA and proteins, and are abundantly present in body fluids such as blood, saliva, urine and milk. Exosomes are regarded as intercellular messengers that deliver their effectors or signaling molecules between specific cells. Nevertheless, their structure, effector composition and involved biological pathways remain poorly understood. Research on the biological functions of exosomes requires isolation of intact exosome particles. Conventional ultracentrifugation is plagued by complicated workflows, high hardware requirements and demanding operation. This exosome isolation and purification kit features optimized components for exosome extraction from a wide range of tissues (including brain, heart, liver, lung, muscle, spleen, lymph node, thymus, embryo, tumor and other tissues). It enables rapid and efficient acquisition of high-purity exosome particles, which are compatible with electron microscopy, NTA particle-size analysis, nucleic acid analysis, protein analysis, cytological assays and animal experiments.

Components

Storage and Transport Unit Item No.	Storage and Transport Unit Name	Component No.	Component Name	Appearance	2T	Storage
E1528051NT	Exosome Isolation and Purification Kit (Tissue) (RT Components)	E1528051A	Solution B2	Liquid	1.2 mL	Room temperature
		E1528051B	Exosome Purification Filter	-	2 EA	Room temperature
E1528051DT	Exosome Isolation and Purification Kit (Tissue) (-20°C Components)	E1528051C	Solution A2	Liquid	5 mL	-20°C.

Note: Each component is individually packaged according to its storage temperature (Room temperature/2-8 °C / -20 °C) upon shipment, with differentiated temperature-controlled transportation to guarantee product performance. Orders containing materials requiring multiple temperature zones may be delivered in separate batches; please refer to the actual received goods. Upon receipt, store components separately at the temperatures specified in the component list. The shelf-life is 24 months from the date of manufacture.

Customer-Supplied Materials

High-speed centrifuge, vortex mixer, 2 mL centrifuge tubes, 1.5 mL microcentrifuge tubes, sterile 1×PBS buffer.

Standard Operating Procedure

I. Sample Pretreatment

1. Thaw Solution A2 at 4 °C or on ice in advance and mix thoroughly.
2. Tissue mincing: Place sterilized labware on ice and cut tissues into small pieces of approximately 1 mm³ ~ 3 mm³ (smaller fragments yield better results).
3. Wash tissue fragments: Transfer tissue pieces to a centrifuge tube, add sterile 1×PBS buffer at no less than 10-fold tissue volume, vortex to mix, then centrifuge at 300 × g (~2,000 rpm*) for 10 min; discard supernatant.

*RPM conversion for small centrifuges with an effective radius of ~7 cm (for tubes ≤2 mL), applicable throughout the protocol.
4. Tissue digestion: Mix tissue fragments with Solution A2 in a 2 mL centrifuge tube at a ratio of 1 mL Solution A2 per 0.1 g tissue. Lay the tube horizontally on a thermostatted shaker at 37 °C with shaking speed of 80 rpm and incubate for 20 min. Alternatively, incubate in a 37 °C water bath for 30 min and invert to mix once every 5 min.
5. Centrifuge and collect supernatant: Centrifuge the digested mixture at 8,000 × g (~10,100 rpm) for 10 min, then transfer supernatant to a new centrifuge tube.
6. Remove miscellaneous debris by centrifugation: Transfer the supernatant to a fresh tube, centrifuge at 12,000 × g (~12,400 rpm) for 10 min at 4 °C to eliminate fine impurities.
7. Transfer clarified supernatant: Move the debris-free supernatant to a new centrifuge tube.

II. Exosome Extraction

1. Add Solution B2 reagent: Supplement the clarified supernatant with Solution B2 at a volume ratio of 4:1 (1/4 volume of supernatant).
2. Mix and incubate: Tightly cap the tube, vortex for 1 min to homogenize thoroughly, then incubate at 4 °C for a minimum of 1 h.

Note: Extended incubation can improve exosome yield, but the incubation time shall not exceed 24 h.

3. Pellet exosomes: Centrifuge the mixture tube at 12,000 × g (~12,400 rpm) for 30 min at 4 °C. Discard supernatant; the pellet contains concentrated exosome particles. Aspirate supernatant completely as far as possible.

4.Secondary centrifugation: Re-centrifuge the tube containing the pellet at $12,000 \times g$ (~12,400 rpm) for 2 min at 4 °C, then thoroughly aspirate and discard residual supernatant.

Note: Remove supernatant to the maximum extent.

5.Resuspend exosomes: Add an appropriate volume of sterile 1×PBS to the pellet and gently pipette up and down until the pellet is fully dissolved. Transfer the resuspension to a new 1.5 mL microcentrifuge tube. Recommended resuspension volume: ~200 µL sterile 1×PBS per initial 0.1 g tissue.

6.Harvest crude exosome particles: Centrifuge the 1.5 mL tube with exosome resuspension at $12,000 \times g$ (~12,400 rpm) for 2 min at 4 °C. Retain the supernatant which contains crude exosomes.

Note: If visible precipitate remains, repeat centrifugation at $12,000 \times g$ for 2 min until no obvious pellet is observed; retain supernatant after each spin.

III. Exosome Purification

1.Purify exosomes: Load crude exosome suspension into the upper chamber of Exosome Purification Filter (EPF column). Centrifuge at $3,000 \times g$ (~6,200 rpm) for 10 min at 4 °C. Collect the eluate at the bottom collection tube of EPF column, which is purified exosome solution.

Note: EPF columns are disposable and cannot be reused.

2.Exosome storage: Aliquot purified exosomes into appropriate volumes and store at -80 °C freezer for downstream experiments.

Precautions

This product is intended solely for life science research purposes. It must not be used for medical diagnosis or clinical applications.

Frequently Asked Questions & Troubleshooting

I. Storage of Kit Reagents

1.Store Solution A2 at -20 °C before and after use. Aliquot into small portions for repeated use to avoid repeated freeze-thaw cycles.

2.Solution B2 can be stored at room temperature permanently. Low temperature may induce white crystalline precipitation in Solution B2 which is hard to redissolve (requires high temperature treatment). Minor precipitation does not interfere with exosome extraction efficiency.

II. Operation of Purification Column

1. Under standard conditions, one single centrifugation at $3,000 \times g$ (~6,200 rpm) for 10 min can complete full purification for each sample. If liquid residue remains in the upper column, flip the column to reverse its orientation in the centrifuge and repeat centrifugation.

2. If abundant liquid still remains after the above operation, transfer residual liquid from the upper column to a brand-new EPF column and repeat centrifugation until all liquid flows down to the collection tube.

III. Exosome Yield

In general, 0.1 g tissue sample (e.g., cardiac muscle tissue) yields 100–200 µg exosomes. Exosome yield varies among different tissue types due to intrinsic differences in exosome secretion levels.

Product Information

Item	Details
Specifications & Purity	BioReagent, Sterile, Nuclease-free
Grade	BioReagent, Sterile
Sample type	Tissue
Storage	Room temperature. Store at -20°C
Shipped In	Ice chest + Ice pads
Stability And Storage	Each component has a shelf life of 24 months under corresponding storage conditions.

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Limitations & Disclaimer

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